



## GUIDELINES AND RECOMMENDATIONS

### Infection Control Guidance for the Prevention and Control of Influenza in Acute-Care Facilities

February 8, 2007

#### Introduction

Influenza is a cause of respiratory illness that may require outpatient health-care visits or hospitalization. During the influenza season, outbreaks of health-care-associated influenza affect both patients and personnel in long-term care facilities and hospitals. Influenza vaccination of both health-care personnel and patients can help prevent outbreaks. This document provides general guidance for prevention and control of influenza transmission in acute-care facilities. Links to recommendations for the 2006-07 influenza season are provided.

#### Transmission

Influenza is primarily transmitted from person-to-person via large virus-laden droplets (particles  $>5\text{ }\mu\text{m}$  in diameter) that are generated when infected persons cough or sneeze; these large droplets can then settle on the mucosal surfaces of the upper respiratory tracts of susceptible persons who are near (e.g., within 3 feet) infected persons. Transmission may also occur through direct contact or indirect contact with respiratory secretions such as when touching surfaces contaminated with influenza virus and then touching the eyes, nose or mouth. Adults may be infectious and able to spread influenza to others from the day before getting symptoms to approximately 5 days after symptoms start. Children may be infectious and able to spread influenza to others for 10 or more days after symptoms begin.

#### Prevention and Control Measures

Strategies for the prevention and control of influenza in acute-care facilities include the following: annual influenza vaccination of all eligible patients and health-care personnel, implementation of Standard and Droplet Precautions for infected individuals, active surveillance and influenza testing for new illness cases, restriction of ill visitors and personnel, administration of prophylactic antiviral medications, and Respiratory Hygiene/Cough Etiquette.

#### Vaccination

All health-care personnel and persons at high risk for complications of influenza should receive annual influenza vaccination according to current national recommendations

(<http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5510a1.htm>).

- Vaccination is the primary measure to prevent infection or development of illness from influenza, and thereby limits transmission of influenza and prevents complications from influenza.
- Inactivated influenza vaccine or live attenuated influenza vaccine may be used to vaccinate most health-care personnel.
  - **Inactivated influenza vaccine** may be used for all health-care personnel and is preferred for vaccinating health-care personnel who have close contact with severely immunosuppressed persons (e.g., patients with hematopoietic stem cell transplants) during those periods in which the immunosuppressed person requires care in a protective environment.

The following persons should not receive inactivated influenza vaccine:

- Persons known to have anaphylactic hypersensitivity to eggs or to other components of the influenza vaccine without first consulting a physician.
  - Persons with moderate-to-severe acute febrile illness usually should not be vaccinated until their symptoms have abated. However, minor illnesses with or without fever do not contraindicate use of influenza vaccine, particularly among children with mild upper-respiratory tract infection or allergic rhinitis.
  - Avoiding vaccination of persons who are not at high risk for severe influenza complications and who are known to have experienced GBS within 6 weeks after a previous influenza vaccination is prudent.
- **Live, attenuated vaccine (LAIV)** may be given to health-care personnel younger than 50 years of age who do not have contraindications to receiving the nasal vaccine. Health-care personnel who may receive LAIV include those taking care of immunocompromised patients who do not require care in a protective environment. If health-care personnel who care for severely immunocompromised patients in protected environments receive LAIV, then they should not care for these patients for 7 days following immunization.

The following persons should not receive LAIV:

- Persons <5 years of age or those >50 years of age.
- Persons with asthma, reactive airways disease or other chronic disorders of the pulmonary or cardiovascular systems; persons with other underlying medical conditions, including such metabolic diseases as diabetes, renal dysfunction and hemoglobinopathies; or persons with known or suspected immunodeficiency diseases or who are receiving immunosuppressive therapies.
- Children or adolescents receiving aspirin or other salicylates (because of the association of Reye's syndrome with wild-type influenza infection).
- Persons with a history of Guillain-Barré syndrome.
- Pregnant women.
- Persons with a history of hypersensitivity, including anaphylaxis, to any of the components of LAIV or to eggs.

### ***Infection Control Measures***

In addition to influenza vaccination, the following infection control measures are recommended to prevent person-to-person transmission of influenza and to control influenza outbreaks in acute-care facilities:

#### **1. Surveillance**

Conduct active surveillance for respiratory illness and use rapid influenza testing to identify outbreaks early so that infection control measures can be promptly initiated to prevent the spread of influenza in the facility.

#### **2. Education**

Educate personnel about the signs and symptoms of influenza, control measures and indications for obtaining influenza testing.

#### **3. Influenza Testing**

Develop a plan for collecting respiratory specimens and performing influenza testing (e.g., rapid diagnostic test, immunofluorescence) and viral cultures

(<http://www.cdc.gov/flu/professionals/diagnosis/0607testingguide.htm>) for influenza when clusters of respiratory illness occur or when influenza is suspected in a patient or health-care provider.

#### **4. Respiratory Hygiene/Cough Etiquette**

(<http://www.cdc.gov/flu/professionals/infectioncontrol/resphygiene.htm>)

Respiratory hygiene/cough etiquette should be implemented beginning at the first point of contact with a potentially infected person to prevent the transmission of all respiratory tract infections in acute-care settings. Respiratory Hygiene/Cough Etiquette include:

- Posting visual alerts instructing patients and persons who accompany them to inform health-care personnel if they have symptoms of respiratory infection
- Providing tissues or masks to patients and visitors who are coughing or sneezing so that they can cover their nose and mouth
- Ensuring that supplies for hand washing are available where sinks are located; providing dispensers of alcohol-based hand rubs in other locations
- Providing space for coughing persons to sit at least 3 feet away from others, if tolerated

#### **5. Standard Precautions**

([http://www.cdc.gov/ncidod/dhqp/gl\\_isolation\\_standard.html](http://www.cdc.gov/ncidod/dhqp/gl_isolation_standard.html))

During the care of any patient with symptoms of a respiratory infection, health-care personnel should adhere to Standard Precautions:

- Wear gloves if hand contact with respiratory secretions or potentially contaminated surfaces is anticipated.
- Wear a gown if soiling of clothes with a patient's respiratory secretions is anticipated.
- Change gloves and gowns after each patient encounter and perform hand hygiene.
- Decontaminate hands before and after touching the patient and after touching the patient's environment or the patient's respiratory secretions, whether or not gloves are worn.
- When hands are visibly soiled or contaminated with respiratory secretions, wash hands with soap (either plain or antimicrobial) and water.
- If hands are not visibly soiled, use an alcohol-based hand rub.

#### **6. Droplet Precautions**

([http://www.cdc.gov/ncidod/dhqp/gl\\_isolation\\_droplet.html](http://www.cdc.gov/ncidod/dhqp/gl_isolation_droplet.html))

In addition to Standard Precautions, health-care workers should adhere to Droplet Precautions during the care of a patient with suspected or confirmed influenza for 5 days after the onset of illness:

- Place patient in a private room. If a private room is not available, place (cohort) suspected influenza patients with other patients suspected of having influenza; cohort confirmed influenza patients with other patients confirmed to have influenza.
- Wear a surgical or procedure mask when entering the patient's room or when working within 3 feet of the patient. Remove the mask when leaving the patient's room and dispose of the mask in a waste container.
- If patient movement or transport is necessary, have the patient wear a surgical or procedure mask, if possible.

#### **7. Antiviral Prophylaxis**

(<http://www.cdc.gov/flu/professionals/treatment/>)

Antiviral prophylaxis may be given to patients and health-care personnel in accordance with current recommendations. On the basis of antiviral testing results conducted at CDC and in Canada indicating high levels of resistance of influenza A virus to some antiviral medications, CDC and ACIP recommend that neither amantadine nor rimantadine be used for the treatment or chemoprophylaxis of influenza A in the United States until susceptibility to these antiviral medications has been re-established among circulating influenza A viruses. Oseltamivir and zanamivir are antiviral medications with activity against both influenza A and B.

## **8. Restrictions for Ill Visitors and Ill Health-care Personnel**

*If there is no or only sporadic influenza activity occurring in the surrounding community:*

- Discourage persons with symptoms of a respiratory infection from visiting patients. Post notices to inform the public about visitation restrictions.
- Monitor health-care personnel for influenza-like symptoms and consider removing them from duties that involve direct patient contact, especially those who work in specific patient care areas (e.g., intensive care units [ICUs], nurseries, organ-transplant units). If excluded from duty, they should not provide patient care for 5 days after the onset of symptoms.

*If widespread influenza activity is in the surrounding community:*

- Notify visitors (e.g., via posted notices) that adults with respiratory symptoms should not visit the facility for 5 days and children with symptoms should not visit for 10 days following the onset of illness.
- Evaluate health-care personnel, especially those in high risk areas (e.g., ICUs, nurseries, and organ transplant units) for symptoms of respiratory infection; perform rapid influenza tests (<http://www.cdc.gov/flu/professionals/labdiagnosis.htm>) to confirm that the causative agent is influenza and to determine whether they should be removed from duties that involve direct patient contact. If excluded, they should not provide patient care for 5 days following the onset of symptoms. The influenza antiviral agents oseltamivir and zanamivir can be used for treatment of influenza.

## **Control of Influenza Outbreaks in Acute-care Settings**

When influenza outbreaks occur in acute-care settings, the following measures should be taken to limit transmission:

- Perform rapid influenza virus testing (<http://www.cdc.gov/flu/professionals/labdiagnosis.htm>) of patients and personnel with recent onset of symptoms suggestive of influenza. In addition, obtain viral cultures from a subset of patients to determine the infecting virus type and subtype and to confirm the results of rapid tests since most rapid tests are less sensitive than cultures.
- Implement Droplet Precautions ([http://www.cdc.gov/ncidod/dhqp/gl\\_isolation\\_droplet.html](http://www.cdc.gov/ncidod/dhqp/gl_isolation_droplet.html)) for all patients with suspected or confirmed influenza.
- Separate suspected or confirmed influenza patients from asymptomatic patients.
- Restrict staff movement from areas of the facility having outbreaks.
- Administer the current season's influenza vaccine to unvaccinated patients and health-care personnel. Follow current vaccination recommendations (<http://www.cdc.gov/flu/protect/keyfacts.htm>) for the use of nasal and intramuscular influenza vaccines.
- Administer influenza antiviral prophylaxis and treatment (<http://www.cdc.gov/flu/professionals/treatment/>) to patients and health-care personnel according to current recommendations.
- Consider antiviral prophylaxis for all health-care personnel, regardless of their vaccination status, if the outbreak is caused by a variant of influenza virus that is not well matched by the vaccine.
- Curtail or eliminate elective medical and surgical admissions and restrict cardiovascular and pulmonary surgery to emergency cases only during influenza outbreaks, especially those characterized by high attack rates and severe illness, in the community or acute-care facility.

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## **Prevention and Control of Influenza in Peri- and Postpartum Settings**

(<http://www.cdc.gov/flu/professionals/infectioncontrol/peri-post-settings.htm>)

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Pregnant women and small infants are at increased risk of hospitalization from influenza complications. Recommendations for preventing influenza transmission between hospitalized infected mothers and their infants have been developed for clinicians and public health officials.

### Additional Resources

The following resources provide information about preventing the spread of influenza in health-care facilities:

- Control of Influenza Outbreaks in Institutions  
<http://www.cdc.gov/flu/professionals/infectioncontrol/institutions.htm>
- Questions and Answers: Influenza Vaccination for Health-Care Workers  
[http://www.cdc.gov/ncidod/dhqp/id\\_influenza\\_vaccine.html](http://www.cdc.gov/ncidod/dhqp/id_influenza_vaccine.html)
- Respiratory Hygiene/Cough Etiquette  
<http://www.cdc.gov/flu/professionals/infectioncontrol/resphygiene.htm>
- Guideline for Isolation Precautions in Hospitals [http://www.cdc.gov/ncidod/dhqp/gl\\_isolation.html](http://www.cdc.gov/ncidod/dhqp/gl_isolation.html)
- Standard Precautions excerpt [http://www.cdc.gov/ncidod/dhqp/gl\\_isolation\\_standard.html](http://www.cdc.gov/ncidod/dhqp/gl_isolation_standard.html)
- Droplet Precautions excerpt [http://www.cdc.gov/ncidod/dhqp/gl\\_isolation\\_droplet.html](http://www.cdc.gov/ncidod/dhqp/gl_isolation_droplet.html)
- Guideline for Preventing Health-Care-Associated Pneumonia, Influenza excerpt  
[http://www.cdc.gov/ncidod/dhqp/id\\_influenza\\_pneuExcerpt.html](http://www.cdc.gov/ncidod/dhqp/id_influenza_pneuExcerpt.html)
- Prevention and Control of Influenza in the Peri- and Postpartum Settings  
<http://www.cdc.gov/flu/professionals/infectioncontrol/peri-post-settings.htm>
- Preventing Opportunistic Infections in HSCT/Bone Marrow Transplant Recipients  
[http://www.cdc.gov/ncidod/dhqp/gl\\_stemcell.html](http://www.cdc.gov/ncidod/dhqp/gl_stemcell.html)
- Flu Vaccination Resources for Health-Care Professionals  
<http://www.cdc.gov/flu/professionals/vaccination/#patient>
- Health Care Infection Control Practices Advisory Committee (HICPAC) Publications  
<http://www.cdc.gov/ncidod/dhqp/guidelines.html>
- Recommendations for Vaccination of Health-Care Workers  
<http://www.cdc.gov/flu/professionals/vaccination/hcw.htm>

### Educational Materials

- Patient and Provider Education Materials <http://www.cdc.gov/flu/professionals/patiented.htm>
- Speak-up™ Campaign <http://www.cdc.gov/ncidod/dhqp/speakUp.html>
- Patient and Provider Education Materials <http://www.cdc.gov/flu/professionals/patiented.htm>
- Information about personal protective equipment <http://www.cdc.gov/ncidod/dhqp/ppe.html>

For more information, visit [www.cdc.gov/flu](http://www.cdc.gov/flu), or call CDC at 800-CDC-INFO (English and Spanish) or 888-232-6358 (TTY).

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